

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A control system of a power transmission mechanism, in which a transmission torque capacity between transmission members varies according to a pressure to be applied to said transmission members, in which a torque according to the transmission torque capacity is transmitted between a prime mover and a drive wheel, and in which the pressure to be applied to said transmission members is controlled on the basis of a slip condition between said transmission members as accompanies the lowering of said pressure, comprising:

decision means for deciding whether or not a predetermined prerequisite condition for lowering the pressure is satisfied,

pressure lowering means for lowering said pressure by a preset value when the decision means decides that the prerequisite condition is satisfied; and

pressure setting means for setting said pressure to a value obtained by adding a pressure corresponding to the road surface input to a lowered minimum value of said pressure, in case the slip between said transmission members is not detected in spite of lowering said pressure by [[a]] the preset value using said pressure lowering means, [[when]] even if the prerequisite condition is not satisfied during lowering the pressure.

Claim 2 (Previously Presented): The control system of a power transmission mechanism according to Claim 1,

wherein said pressure lowering means includes means for lowering a pressure command value stepwise and keeping the pressure command value constant for a preset time period and for outputting a command signal to raise said pressure command value after lapse of said preset time period.

Claim 3 (Previously Presented): The control system of a power transmission mechanism according to Claim 1,

wherein said pressure lowering means includes means for lowering said pressure stepwise and then steplessly to a preset value.

Claim 4 (Previously Presented): The control system of a power transmission mechanism according to Claim 1,

wherein said pressure lowering means includes means for lowering said pressure with a preset gradient for a preset time period and then raising said pressure.

Claim 5 (Previously Presented): The control system of a power transmission mechanism according to Claim 1, further comprising:

pressure re-lowering means for lowering said pressure again, in case the slip between said transmission members is not detected in spite of lowering said pressure by a preset value using said pressure lowering means, by said preset value from a lower pressure than the pressure before lowered by said preset value.

Claim 6 (Previously Presented): The control system of a power transmission mechanism according to Claim 1, further comprising:

another pressure re-lowering means for lowering said pressure again, in case the slip between said transmission members is not detected in spite of lowering said pressure by a preset value using said pressure lowering means, by more than said preset value from a pressure before lowered by said preset value.

Claim 7 (Previously Presented): The control system of a power transmission mechanism according to Claim 1,

wherein said pressure lowering means includes means for lowering said pressure within a preset time; and

further comprising limit pressure detecting means for detecting a limit pressure for causing a slip in said transmission members while said pressure is being lowered by a preset value.

Claim 8 (Previously Presented): The control system of a power transmission mechanism according to Claim 7,

wherein said power transmission mechanism includes a continuously variable transmission having a transmission torque capacity varied according to a clamping pressure;

wherein said pressure lowering means includes means for lowering said clamping pressure; and

wherein said limit pressure detecting means includes means for detecting a slip limit pressure produced as said clamping pressure lowers.

Claim 9 (Previously Presented): The control system of a power transmission mechanism according to Claim 8, further comprising:

slip limit deciding means for deciding the start of said slip on the basis of an estimated value, which is estimated from the gear ratio or gear changing rate before the present instant, and the gear ratio or gear changing rate at the present instant.

Claim 10 (Previously Presented): The control system of a power transmission mechanism according to Claim 9, further comprising:

estimated value calculating means for determining said estimated value by considering a preset time period at the lowering start of said clamping pressure.

Claim 11 (Previously Presented): The control system of a power transmission mechanism according to Claim 9,

wherein said slip limit deciding means includes means for adopting the estimated value of said gear changing rate as a gear changing rate at an instant just before the present instant.

Claim 12 (Previously Presented): The control system of a power transmission mechanism according to Claim 9,

wherein said slip limit deciding means includes means for adopting a gear changing rate at an instant within a preset range containing an instant, at which the lowering of said clamping pressure is started, as the estimated value of said gear changing rate.

Claim 13 (Previously Presented): The control system of a power transmission mechanism according to Claim 8, further comprising:

learning means for determining a learned value of said clamping pressure on the basis of said slip limit pressure;

comparison means for comparing the actual gear ratio after lapse of a preset time period from when said clamping pressure was set and an estimated gear ratio on the basis of said learned value; and

learned value unadopting means for not using said learned value for the clamping pressure control in case the value of the comparison result between the actual gear ratio and the estimated gear ratio at said comparison means is outside of a preset range.

Claim 14 (Previously Presented): The control system of a power transmission mechanism according to Claim 8, further comprising:

end deciding means for deciding the end of the detection control of said slip limit pressure on the basis of a gear change command value or a gear changing rate before the slip limit detection and a gear ratio at the slip limit pressure detection time.

Claim 15 (Previously Presented): The control system of a power transmission mechanism according to Claim 1, further comprising:

pressure applying means for setting said pressure to be applied to said power transmission mechanism, with physical quantities determined from the slip starting pressure, at which the slip between said transmission members is started by lowering said pressure when a preset input torque is acting, and a theoretical pressure determined on the basis of said input torque.

Claim 16 (Previously Presented): The control system of a power transmission mechanism according to Claim 15, further comprising:

learning correction means for learning and correcting said physical quantities on the basis of the action state of said power transmission mechanism.

Claim 17 (Previously Presented): The control system of a power transmission mechanism according to Claim 16,

wherein said power transmission mechanism includes a continuously variable transmission for changing the gear ratio continuously and changing a torque capacity according to the clamping pressure, and

wherein said learning correction means includes means for learning and correcting said physical quantities on the basis of at least any of the input speed, the input torque and the gear ratio of said continuously variable transmission.

Claim 18 (Previously Presented): The control system of a power transmission mechanism according to Claim 16,

wherein said power transmission mechanism includes a continuously variable transmission for changing the gear ratio continuously and changing a torque capacity according to the clamping pressure, and

wherein said learning correction means includes means for learning and correcting said physical quantities on the basis of the function of the gear ratio of said continuously variable transmission.

Claim 19 (Previously Presented): The control system of a power transmission mechanism according to Claim 18,

wherein said learning correction means includes means for learning and correcting said physical quantities by operating the changes in the friction coefficient in said continuously variable transmission as a function of said gear ratio.

Claim 20 (Currently Amended): A control system of a power transmission mechanism, in which a transmission torque capacity between transmission members varies according to a pressure to be applied to said transmission members, in which a torque according to the transmission torque capacity is transmitted between a prime mover and a drive wheel, and in which the pressure to be applied to said transmission members is

controlled on the basis of a slip condition between said transmission members as accompanies the lowering of said pressure, comprising:

a decision device for deciding whether or not a predetermined prerequisite condition for lowering the pressure is satisfied,

a pressure lowering device for lowering said pressure by a preset value when the decision device decides that the prerequisite condition is satisfied; and

a pressure setter for setting said pressure to a value obtained by adding a pressure corresponding to the road surface input to a lowered minimum value of said pressure, in case the slip between said transmission members is not detected in spite of lowering said pressure by [[a]] the preset value using said pressure lowering device, [[when]] even if the prerequisite condition is not satisfied during lowering the pressure.

Claim 21 (Previously Presented): The control system of a power transmission mechanism according to Claim 1, comprising:

pressure lowering control means for lowering said pressure stepwise and then steplessly when said pressure is to be lowered so as to change the slip state between said transmission members.

Claim 22 (Previously Presented): The control system of a power transmission mechanism according to Claim 1, comprising:

slip detecting means for detecting the slip between said transmission members as said pressure lowers; and

pressure raising means for instructing to raise the pressure to be applied to said transmission members, in case the slip between said transmission members is detected by

said slip detecting means, stepwise to a pressure higher than the pressure at the instant of starting said pressure lowering.

Claim 23 (Previously Presented): The control system of a power transmission mechanism according to Claim 1, comprising:

pressure restoring means for instructing to raise said pressure stepwise in case the slip between said transmission members is detected by said slip detecting means; and

torque limiting means for limiting the increase in the torque of said prime mover when said pressure is instructed to rise by said pressure restoring means.

Claim 24 (Previously Presented): The control system of a power transmission mechanism according to Claim 1, comprising:

slip control means for setting a state, in which a slip occurs in said clutch at a disturbance time with respect to said power transmission mechanism before said pressure is lowered to detect the slip between said transmission members.

Claims 25-26 (Canceled).

Claim 27 (Previously Presented): The control system of a power transmission mechanism according to Claim 1, comprising:

slip pressure deciding means for deciding the pressure at an instant before the instant, at which the slip between said transmission members was detected by said slip detecting means, as a slip starting pressure between said transmission members.



Claim 28 (Withdrawn - Currently Amended): A control method of a power transmission mechanism, in which a transmission torque capacity between transmission members varies according to a pressure to be applied to said transmission members, in which a torque according to the transmission torque capacity is transmitted between a prime mover and a drive wheel, and in which the pressure to be applied to said transmission members is controlled on the basis of a slip condition between said transmission members as accompanies the lowering of said pressure, comprising:

a decision step for deciding whether or not a predetermined prerequisite condition for lowering the pressure is satisfied,

a pressure lowering step of lowering said pressure by a preset value when the decision step decides that the prerequisite condition is satisfied; and

a pressure setting step of setting said pressure to a value obtained by adding a pressure corresponding to the road surface input to a lowered minimum value of said pressure, in case the slip between said transmission members is not detected in spite of lowering said pressure by [[a]] the preset value at said pressure lowering step, [[when]] even if the prerequisite condition is not satisfied during lowering the pressure.

Claim 29 (Withdrawn): The control method of a power transmission mechanism according to Claim 28,

wherein said pressure lowering step includes a step of lowering a pressure command value stepwise and keeping the pressure command value constant for a preset time period and for outputting a command signal to raise said pressure command value after lapse of said preset time period.

Claim 30 (Withdrawn): The control method of a power transmission mechanism according to Claim 28,

wherein said pressure lowering step includes a step of lowering said pressure stepwise and then stepplessly to a preset value.

Claim 31 (Withdrawn): The control method of a power transmission mechanism according Claim 28,

wherein said pressure lowering step includes a step of lowering said pressure with a preset gradient for a preset time period and then raising said pressure.

Claim 32 (Withdrawn): The control method of a power transmission mechanism according to Claim 28, further comprising:

a pressure re-lowering step of lowering said pressure again, in case the slip between said transmission members is not detected in spite of lowering said pressure by a preset value at said pressure lowering step, by said preset value from a lower pressure than the pressure before lowered by said preset value.

Claim 33 (Withdrawn): The control method of a power transmission mechanism according to Claim 28, further comprising:

an another pressure re-lowering step of lowering said pressure again, in case the slip between said transmission members is not detected in spite of lowering said pressure by a preset value at said pressure lowering step, by more than said preset value from a pressure before lowered by said preset value.

Claim 34 (Withdrawn): The control method of a power transmission mechanism according to Claim 28,

wherein said pressure lowering step includes a step of lowering said pressure within a preset time; and

further comprising a limit pressure detecting step of detecting a limit pressure for causing a slip in said transmission members while said pressure is being lowered by a preset value.

Claim 35 (Withdrawn): The control method of a power transmission mechanism according to Claim 34,

wherein said power transmission mechanism includes a continuously variable transmission having a transmission torque capacity varied according to a clamping pressure;

wherein said pressure lowering step includes a step of lowering said clamping pressure; and

wherein said limit pressure detecting step includes a step of detecting a slip limit pressure produced as said clamping pressure lowers.

Claim 36 (Withdrawn): The control method of a power transmission mechanism according to Claim 35, further comprising:

a slip limit deciding step of deciding the start of said slip on the basis of an estimated value, which is estimated from the gear ratio or gear changing rate before the present instant, and the gear ratio or gear changing rate at the present instant.

Claim 37 (Withdrawn): The control method of a power transmission mechanism according to Claim 36, further comprising:

an estimated value calculating step of determining said estimated value by considering a preset time period at the lowering start of said clamping pressure.

Claim 38 (Withdrawn): The control method of a power transmission mechanism according to Claim 36,

wherein said slip limit deciding step includes a step of adopting the estimated value of said gear changing rate as a gear changing rate at an instant just before the present instant.

Claim 39 (Withdrawn): The control method of a power transmission mechanism according to Claim 36,

wherein said slip limit deciding step includes a step of adopting a gear changing rate at an instant within a preset range containing an instant, at which the lowering of said clamping pressure is started, as the estimated value of said gear changing rate.

Claim 40 (Withdrawn): The control method of a power transmission mechanism according to Claim 35, further comprising:

a learning step of determining a learned value of said clamping pressure on the basis of said slip limit pressure;

a comparison step of comparing the actual gear ratio after lapse of a preset time period from when said clamping pressure was set and an estimated gear ratio on the basis of said learned value; and

a learned value unadopting step of not using said learned value for the clamping pressure control in case the value of the comparison result between the actual gear ratio and the estimated gear ratio at said comparison step is outside of a preset range.

Claim 41 (Withdrawn): The control method of a power transmission mechanism according to Claim 35, further comprising:

an end deciding step of deciding the end of the detection control of said slip limit pressure on the basis of a gear change command value or a gear changing rate before the slip limit detection and a gear ratio at the slip limit pressure detection time.

Claim 42 (Withdrawn): The control method of a power transmission mechanism according to Claim 28, further comprising:

a pressure applying step of setting said pressure to be applied to said power transmission mechanism, with physical quantities determined from the slip starting pressure, at which the slip between said transmission members is started by lowering said pressure when a preset input torque is acting, and a theoretical pressure determined on the basis of said input torque.

Claim 43 (Withdrawn): The control method of a power transmission mechanism according to Claim 42, further comprising:

a learning correction step of learning and correcting said physical quantities on the basis of the action state of said power transmission mechanism.

Claim 44 (Withdrawn): The control method of a power transmission mechanism according to Claim 43,

wherein said power transmission mechanism includes a continuously variable transmission for changing the gear ratio continuously and changing a torque capacity according to the clamping pressure, and

wherein said learning correction step includes a step of learning and correcting said physical quantities on the basis of at least any of the input speed, the input torque and the gear ratio of said continuously variable transmission.

Claim 45 (Withdrawn): The control method of a power transmission mechanism according to Claim 43,

wherein said power transmission mechanism includes a continuously variable transmission for changing the gear ratio continuously and changing a torque capacity according to the clamping pressure, and

wherein said learning correction step includes a step of learning and correcting said physical quantities on the basis of the function of the gear ratio of said continuously variable transmission.

Claim 46 (Withdrawn): The control method of a power transmission mechanism according to Claim 45,

wherein said learning correction step includes a step of learning and correcting said physical quantities by operating the changes in the friction coefficient in said continuously variable transmission as a function of said gear ratio.

Claim 47 (Withdrawn): The control method of a power transmission mechanism according to Claim 28, comprising:

a pressure lowering control step of lowering said pressure stepwise and then steplessly when said pressure is to be lowered so as to change the slip state between said transmission members.

Claim 48 (Withdrawn): The control method of a power transmission mechanism according to Claim 28, comprising:

a slip detecting step of detecting the slip between said transmission members as said pressure lowers; and

a pressure raising step of instructing to raise the pressure to be applied to said transmission members, in case the slip between said transmission members is detected at said slip detecting step, stepwise to a pressure higher than the pressure at the instant of starting said pressure lowering.

Claim 49 (Withdrawn): The control method of a power transmission mechanism according to Claim 28, comprising:

a pressure restoring step of instructing to raise said pressure stepwise in case the slip between said transmission members is detected at said slip detecting step; and

a torque limiting step of limiting the increase in the torque of said prime mover when said pressure is instructed to rise at said pressure restoring step.

Claim 50 (Withdrawn): The control method of a power transmission mechanism according to Claim 28, comprising:

a slip control step of setting a state, in which a slip occurs in said clutch at a disturbance time with respect to said power transmission mechanism before said pressure is lowered to detect the slip between said transmission members.

Claim 51 (Withdrawn): The control method of a power transmission mechanism according to Claim 28, comprising:

a slip pressure deciding step of deciding the pressure at an instant before the instant, at which the slip between said transmission members was detected by said slip detecting means, as a slip starting pressure between said transmission members.